

particles of coral. These Pteropod shells, as noted in previous expeditions by different nations, appear to be an important factor in the determination of the movements of great bodies of sea-water. The ridge at the "Windward Passage" is bare coral rock, and on the south side the Pteropod shells were found to be much more numerous than to the northward of the ridge. Soundings and serial temperatures being the special objects of the course, dredgings were only incidentally attempted for the purpose of reconnoitring, as it were, the ground, and it was found that the area passed over was not nearly so rich in animal life as that in which dredgings were taken last year under the lee of the Windward Islands at the eastward of the Caribbean Sea.

The development of the extraordinary submarine valley in the western Caribbean Sea is a matter of great interest considered as a physical feature. This valley extends in length 700 statute miles from between Jamaica and Cuba nearly to the head of the Bay of Honduras, with an average breadth of 80 miles. Curving around between Misteriosa Bank and Yucatan, and running along between Cuba and the ridge of the Caymans for a distance of 430 miles, with a breadth of 105 miles, it covers an area of over 85,000 *square miles*, having a depth nowhere less than 2,000 fathoms, except at two or three points (the summits of submarine mountains), with a greatest depth, 20 miles south of the Grand Cayman, of 3,428 fathoms, thus making the low island of Grand Cayman, scarcely 20 feet above the sea, the summit of a mountain 20,568 feet above the bottom of the submarine valley beside it—an altitude exceeding that of any mountain on the North American continent, above the level of the sea, and giving an altitude to the highest summit of Blue Mountain in Jamaica, above the bottom of the same valley, of nearly 29,000 feet, an altitude as great, probably, as that of the loftiest summit of the Himalayas above the level of the sea.

For the deepest portion of this great submarine valley the Superintendent of the Coast and Geodetic Survey has adopted the name of "Bartlett Deep."

ALBANIA AND THE ALBANIANS

ABOUT the dawn of authentic history the Balkan peninsula seems to have been mainly occupied by two kindred Aryan peoples—the Hellenes in the south, the Thrako-Illyrians in the north. Since then, or, say, for some 3,000 years, this region has been swept by more numerous tides of migration than almost any other country on the globe. Some of these waves, such as those of the Kelts 300 years before, and of the Goths 400 years after, the Christian era, receded without leaving any permanent traces behind them. Some, such as the Romans, are still represented by the Dako-Rumanians of the Danubian principalities and their southern kinsmen, the Zinzars or Kutzo-Vlachs of the Pindus range and Thessaly. Others, such as the Ugrian Bulgars, have been absorbed or assimilated to the Slaves, intruders like themselves, while others again have either resettled the land, as, for instance, the Serbo-Croatians, or else, like the Osmanli of Türki stock, have seized the political control without making any serious attempts at colonisation. The result is a condition of things absolutely without a parallel elsewhere—an utter chaos of races, languages, religions, a clash of social interests and national aspirations, which has long threatened the peace of the world, and the means of reconciling which the wisest heads have hitherto failed to discover.

But beneath and above all these strange vicissitudes and endless complications the two relatively aboriginal elements of the population still here and there hold their ground. The Hellenes have doubtless been largely Slavonised almost everywhere on the mainland,¹ although

¹ "La Grèce devint une Slavie, et l'idiome général fut une langue Slave" (E. Reclus, i. p. 62).

even here the old Dorians are still believed to survive in the Zakonians of the Spartan hills and the Mainotes of the Tænaron peninsula. The northern branch, also, of what has not inaptly been called the Thrako-Hellenic family still predominates, and even retains a certain vitality, in the Albanian highlands. Thracians, Pæonians, Dardaniens, Mœsians, and all the other eastern and northern members of the race have long been extinct as independent nationalities; but the Illyrian or western branch still continues to be represented by the Shkipetars in their original home, on the south-eastern shores of the Adriatic.

The term Albania, it is needless to say, possesses no administrative significance, nor even any very strictly-defined geographical limitations. It is purely an ethnographic expression, though even in this sense no longer quite conterminous with the people from whom it is derived. In its widest extent Albania stretches from the Montenegrin and Servian frontiers southwards to Greece, and from the Pindus, Grammos, and Char Dag ranges westwards to the coast. Within this area are comprised three nearly coincident physical and ethnical divisions, for everything here seems to run in triads, so that the more technical data necessary to understand a somewhat intricate subject may be conveniently summed up in the subjoined series of triplets:—

I. THREE NATURAL DIVISIONS.—1. *Upper Albania*, reaching as far south as the river Shkumbi, about 41° N. lat., and mainly comprised in the Drin basin. 2. *Central Albania*, between the Shkumbi and Vuyussa rivers, mainly in the Ergent basin. 3. *Lower Albania*, or *Epirus*,¹ thence to the present Greek frontier (Akarnania).

II. THREE POLITICAL DIVISIONS.—The Turkish vilayets of *Isgodra* (*Skutari*), *Monastir* or *Qosova*, and *Yanina*, the two former stretching eastwards beyond the actual limits of Albania proper, most of the third awarded to Greece by the Berlin Conference, which has just concluded its labours in connection with the settlement of the new Turko-Greek frontier.

III. THREE GREAT LAKES.—Those of *Skutari*, *Okhrida*, and *Yanina*, convenient landmarks, a curve described through which from about Antivari to Prevesa, both on the coast, will roughly mark the inland frontier line of Albania proper.

IV. THREE MAIN RACIAL ELEMENTS.—1. The old Thrako-Illyrian, now everywhere largely intermingled with 2, The Slav (Serbo-Croatian branch) in the north, and with 3, The Hellenic (Dorian branch) in the south.

V. THREE COLLECTIVE ETHNICAL OR NATIONAL NAMES.—1. *Shkipetar*, the most general national appellation of the people, whence *Shkiperia* (in the Northern dialect *Sipenia*) the country, and *Shkipeia*, the language; from root *Shkip*, *Shkup* = rock; compare Greek, *σκόπελος*; Latin, *scopulus*; and Ptolemy's old Dardanian town of *Skupi*. Hence *Shkipetar* = hillmen, highlanders, according to the most accepted interpretation. 2. *Albanian*, unknown, at least in this form, to the natives, yet of respectable antiquity, and now mainly current in the west of Europe and Greece. The word is usually referred to the Keltic or Aryan root *alb*, *alp* = height, snowy crest, and has been connected with Ptolemy's *Albani*, a small tribe whose chief town was *Albanopolis*, north-west of the *Lychnitis Palus* (Lake *Okhrida*). As a general name it occurs first in the Byzantine writings of the eleventh century under the two forms *Ἀλβανοί* and *Ἀρβανίται*,²

¹ That is, *Ἠπειρος*, or "Mainland," so called no doubt originally by the Greeks of the adjacent island of *Korkyra* (Corfu).

² *Kedrenus*, *Skylitzes*, *Anna Comnena*. In *Georg. Akropol.* ("Annals," c. 68) occurs the expression *τῶν Ἀρβανιτῶν ἔθνος*. The forms *Arberi* or *Arbernia* for the land, and *Arbereshi* for the people are even still current amongst the Northern Albanians, and must at one time have been very general, for the various Albanian colonies settled in South Italy since the latter half of the fifteenth century even now call themselves *Arberish* or *Arberesh*, and their language *Arberishte* or *Arberishte*. In Greece also *Ἀρβανία* and *Ἀρβανίτης* are current as equivalents of *Ἀλβανία* and *Ἀλβανός*.

and from the latter seems to have been formed, 3, *Arnaut*, the general Turkish designation, though more strictly applicable to the Muhammadan Albanians. Thus Arnaut, Albanian, and Shkipetar, all traceable to roots meaning rock, height, would be practically synonymous, and aptly descriptive of an essentially "highland" race.

VI. THREE MAIN ETHNICAL DIVISIONS.—1. *Gheg* (Gepides) in Upper Albania, as far south as River Shkumbi, and penetrating eastwards across the Morava Valley nearly to Sophia, with detached enclaves in Servia, but on the other hand partly Slavonised on the Montenegrin frontier. Elsewhere the Ghegs are taken as the purest representatives of the old Illyrian stock. This word, the origin of which is unknown, was a term of contempt originally applied to them by their southern kinsmen. It has thus come into general use, although never employed by the people themselves, who use either the collective designation Shkipetar or the particular name of their tribe. 2. *Toshk* or *Tosk* (Toskides) in Central and Lower Albania, wherever not Hellenised. Originally confined to the Toskides proper of Toskeria, a small district on the right bank of the Lower Voyussa north-west of Topedelen, this word has also gradually acquired general currency, and so far differs from the corresponding Gheg that it is accepted and used by the people themselves, at least throughout the whole of the Voyussa basin. 3. The *Epirots* of the Vilayet Yanina from the remotest times largely intermingled with the Dorian Greeks, and now almost completely Hellenised. The term is of course rather geographical than ethnical, but very convenient in view of the political changes now pending in this district. In connection with these changes it will be useful to note that the Pindus range between Epirus and Thessaly is occupied by the Kutzo-Vlachs (the Kara-Guni or "Black Capots" of the Turks), with decided Hellenic proclivities, religious, political, and social, though still speaking a corrupt Rumanian (neo-Latin) tongue. Even in Epirus the Toshk itself, wherever still spoken, is largely mixed with Greek elements, and most of the Toshks themselves are here bilingual, speaking Greek and their mother tongue indifferently, while in Yanina, capital of the vilayet, Greek has long been supreme. Consequently the contemplated transfer of this territory to Greece, with which it has been uninterruptedly associated from prehistoric times,¹ cannot seriously affect the integrity of the Albanian race or do any undue violence to their legitimate national aspirations.

VII. THREE RELIGIONS: 1. *Muhammadan* everywhere, but rather more general in the south than the north; 2. *Orthodox Greek*, almost exclusively in the south; 3. *Roman Catholic*, of Latin rite, almost exclusively in the north. From this it follows that the Ghegs are partly Moslem, partly Roman Catholic; the Toshks partly Moslem, and partly Orthodox Greek; the respective numbers being as under, as far as any such estimates can at all be depended upon in Turkey:—

	Moslem.	Orthodox Greek.	Catholic (Latin).	Total.
Ghegs ...	400,000	50,000	150,000	600,000
Toshks ...	600,000	200,000	—	800,000

The diffusion of Muhammadanism no more implies the presence of Türki elements in Albania than it does in Herzegovina or amongst the Bulgarian Pomaks of the Rhodope Mountains. Like causes have produced like results in all these places, and in Albania, when resistance ceased with the death of George Castriota, most of the influential and better classes adopted Islam, while the peasantry, who never had much to lose or gain either way, remained christian. We sometimes hear it said that religion is a racial test in Turkey, but from this it is evident that the statement can be true only in a negative sense. It is safe to say that here no Christians are of

Türki stock; but the converse is very far from being the case, for we see from this table that in Albania alone there are no less than 1,000,000 Muhammadans who are not of Türki, but of Illyrian stock, apart always from a few Osmanli officials and others in the large towns.

TRIBES.—It is not a little remarkable that the country which might almost be regarded as the cradle of European civilisation has itself remained nearly stationary since the rude Dorians issued forth from the mountains of Epirus to the conquest of Peloponnesus. Of all the western Aryans the Albanians alone have remained in a semi-pastoral state, and retained the primitive tribal organisation. Both branches of the race, but especially the Ghegs, are still divided into a considerable number of *phis* or *phar*,¹ that is, clans or septs, some of which, such as the Suliots in the south, and the Mirdites in the north, have acquired historic renown. George Castriota, the Scanderbeg, or "Alexander the Great" of the Turks, who almost single-handed for thirty years stemmed the torrent of Osmanli conquest, was Prince of the Mirdites, and, the astounding valour and self-devotion of the Suliots form one of the most stirring episodes in the Græco-Turkish wars during the early part of the present century. Recently also such tribal names as those of the Klementi, Hotti, Dukazin and others have been heard of in connection with the present political troubles on the Montenegrin and Albanian frontiers. As such troubles are likely to be of a protracted character, pending the definite settlement of the new northern and southern frontier lines, the readers of NATURE will probably be glad to have in the annexed table a complete classification of all the Albanian tribes:—

GHEGS.	MIRDITES:—	Dukazin; Dibri; Mats or Matia; Oroschi Fandi; Kushneni, Spachi; Kuchi
	PULATI:—	Giovagni; Planti; Kiri; Summa; Toplana; Dushmani; Shalla; Shoshi
	Other semi-independent tribes.	Klementi; Hotti; Shrelli; Kastrati; Rechiluh; Rioli; Posripa; Kopliki; Grica Gruemir; Busagwit; Grudda; Trepchi
TOSHS.	Toshks proper of	Toskeria; Yapidis or Liapes;
	Kheimariots; Tyames; Suliots	Khamides or Khumis

Of all the tribal associations by far the most important are the Mirdites, who, although numbering scarcely over 20,000 altogether, form a powerful political factor in the country. They constitute a Roman Catholic oligarchy, whose chief town is Orosch, where resides their prince or chief. The confederacy is fully recognised by the Porte, to which it is tributary. Amongst them has long been prevalent the custom of marrying none but Turkish, or rather Muhammadan, women, carried off from the plains and baptised in the mountains. Their territory lies chiefly south of the Drin, and with the Pulati ("Men of the Woods"), Klementi, Hotti, and other highland tribes between the head streams of that river and Lake Skutari, they are often collectively called Malliesor or "Black Mountaineers."² But they must not on that account be confounded with the neighbouring Montenegrins, as some writers have recently done.³

Of the Toshk tribes the most influential are the Toshks proper on both banks of the Lower Voyussa; the Yapidis or Yagys, who are the Lapidis, Liapes, or Lapes of the Greeks, on the Akrokeraunian coast range as far south

¹ Terms probably referable to the same Aryan roots as the Greek *φῆρ*, implying blood relationship, and *φάρμα*, a wider tribal signification.

² From *mal*, mountain, and *sy*, black.

³ F. Bianconi ("Ethnographie et Statistique de la Turquie d'Europe," Paris, 1877), speaking of the Kuchi, Klementi, Pulati, and Mati, says (p. 45) that "toutes ces races sont Slaves." But Ritter zur Helle von Samo ("Die Völker des osmanischen Reiches," Vienna, 1877), with his usual accuracy, includes them amongst the independent Albanian tribes of the Vilayet of Skutari. So also E. Reclus (I. p. 188) and Vivien de Saint-Martin (Art. Albanie, p. 59):—"Leurs tribus les plus notables sont au nord du Drin inférieur, entre les confluences des deux branches supérieures du fleuve et le lac de Scutari les Klementi, les Hotti, les Kastrati, et les Poulati, ou gens des forêts."

¹ Here were the famous Oracle of Dodona and the no less famous rivers Acheron and Cocytus, which play such a conspicuous part in Greek mythology, and here was one of the early seats of the Dorians before they migrated southwards.

as the River Pavla,¹ and the Khamids or Khamis between the Pavla and Kalama Rivers over against Corfu. Many of the Khamids, however, have already been Hellenised, and the rest form detached communities everywhere surrounded by Greek-speaking populations, as correctly indicated on the ethnological map of European Turkey and Greece recently published by Stanford of Charing Cross.

Including the Albanian colonies since the fifteenth and sixteenth centuries settled in South Italy and Sicily, and many scattered Toshk settlements in the Morea, Attica, Eubœa, and the Archipelago, the whole race numbers at present considerably over a million and a half, as under:—

Upper Albania (Ghegs)	700,000
Central and Lower Albania (Tosks)	680,000
South Italy and Sicily	180,000
Greece and Archipelago	90,000

1,650,000

LANGUAGE.—The broad distinction between the northern and southern branches of the race—Illyrians or Ghegs, and Epirots or Toshks—dates from the earliest historic records, and was clearly recognised by antiquity. The parting line between the two was much the same then as now, being fairly indicated by the famous Roman road, the Via Egnatia, running from Dyrrachium (Durazzo), on the Adriatic, through Okhrida and Bitolia (Monastir), to Thessalonica (Saloniki), on the Ægean. North of this great highway dwelt the Illyrians, Dardanians, and Pæonians, all closely allied in speech, south of it the Epirots and Southern Macedonians, also represented as originally of kindred speech and like customs, though both were later on largely Hellenised.² The difference between the northern and southern dialects still persists in Albania, where alone the Thrako-Illyrian language survives, the Gheg and Toshk standing in much the same relation to each other as High to Low German, or even to Danish. Hence the extreme northern and southern tribes are almost mutually unintelligible, although the Toshks and Ghegs of the border districts (Ergent and Shkumbi valleys) are able to converse together. The Italo-Albanian Demetrius Kamardas accordingly takes the speech current in this central tract as the common "Illirio-Epirotic" standard.³

The linguistic affinities of Albania were long a source of great trouble to philologists, and its claims to membership with the Aryan family were only finally established beyond dispute by J. G. von Hahn.⁴ But its position within the family itself can scarcely be said to have yet been satisfactorily determined. Bopp⁵ compared it, after his usual method, chiefly with Sanskrit, while others have regarded it as simply an archaic or even a corrupt variety of Greek.⁶ The truth would seem to lie between these extremes, and a more exhaustive study of the subject will probably show that in Albanian we have the only surviving link between the Asiatic and Græco-Italic branches of the Aryan family. An analysis of the southern dialect shows that of its roots about one-third are common to Æolic Greek, one-third to Italic, Keltic, Teutonic, and

Slavonic, the rest consisting of an unknown element assumed to represent the speech of the ancient Thrako-Illyrians. The Italic, Keltic, Teutonic, and Slavonic words may be referred partly to their common Aryan inheritance, partly to contact possibly in prehistoric, certainly in historic times—the Keltic invasion third century B.C.; Gothic irruption under Alaric; Roman rule of five centuries; Serb occupation of Upper Albania to the Drin from 640 to 1360 A.D.; Bulgarian occupation of the central districts till 1019.

But what has been called the Æolic Greek element seems rather to date from a common pre-Hellenic period, for it often presents a more primitive phonetic system, and more archaic grammatical and lexical forms than the oldest Greek extant—forms which cannot be derived from Greek, but which are intermediate links between Hellenic and Asiatic Aryan. Thus the Albanian *bolnesa* = *will* (noun) explains the Greek *βουλομαι* for *βολνομαι*, connecting it with the Sanskrit *varnamai*. Alb. *dera* = *door*, stands between Gr. *θύρα* and Sans. *dvāra*; Alb. *nërr* or *niër* = *man* between Gr. *ἄνθρωπος* and Sans. *nar*. Here the organic *a* has become *e* both in Alb. and Gr., but Alb. has not taken the prosthetic *a*, a sufficient proof that it does not derive from, but belongs to an older period than, Greek. Grammatical forms point in the same direction. Thus the Alb. genitive in *tye*, as in *atyë* = *of him*, answers to the Sans. *sya*, *tya*, and to the old Gr. *είο*, *εο*, *οίο* = *ou*, as in *ἐμείο*, *ἐμέο*, *ἐμοῖο*, *ἐμου*. The numerals, often so instructive in comparisons of this sort, place the matter in a still clearer light. Thus Alb. *nyë*, *nya* = *one* = Gr. *εἷς* for *ἕν*-s, neutral *ἑν*; *katër* = *four*, has the organic *k*, which in Gr. becomes *t* (*τέτταρ*-es), Sans. *katvar*, *katur*, Lat. *quatuor*. Compare also Alb. *gyash-te* = *six* with the Sans. *shash* and Gr. *ἕξ*, where the Alb. *g* forms the intermediate stage between the original sibilant and the Gr. rough breathing. In *shetta-te* = *seven* Alb. retains the sibilant, here standing on the same level as Sans. *saptan*, as compared with Gr. *ἑπτά* for *σεντά*.

In other instances Albanian shows great corruption and phonetic decay, as might be expected in a rude, uncultivated tongue never reduced to writing till quite recently. But the corruption and decay always proceed on different lines from those followed by Greek in its evolution. Thus Alb. *nën-te* (Skutari dialect *nān*) and Gr. *ἐννέα* = *nine*, have both lost the digamma preserved in the Sans. *navan*, from which each flows in independent channels: Alb. *nefan*, *nean*, *nēn*, *nān*; Gr. *ἄννεφα*, *ἄννεφα*, *ἄννεα*, here prosthetic *a* causing reduplication and loss of final *v*.

The general tendency of Albanian, as of French, is towards short and contracted forms, the suppression of middle and weakening of final vowels to *e* mute or *eu*. This, combined with a somewhat barbarous system of orthography, half Greek, half Latin, which has here been replaced by a simple phonetic system, gives the language a decidedly rough and uncouth look, though it is by no means deficient in harmony, and what Kamardas finely calls a certain Hellenic "aura," so that "at times we fancy we are listening to Greek instead of Albanian utterances."⁷

The determination of the true position of Albanian is of such importance in the history of Aryan speech that the reader will probably excuse this somewhat dry excursus.

TYPE.—From many of the foregoing indications it is obvious that the Albanians can by no means be regarded as a pure race. In popular works of travel or fiction a certain halo of romance is thrown over the people, who are represented as endowed with almost classic symmetry of form and beauty. This is to some extent true in the south, where intermixture with the kindred Hellenes could scarcely be otherwise than beneficial, and even in

¹ Here was Ptolemy's Albanopolis, and here is a maritime canton still called Arberia or Arberi, and in Gheg Arberia, that is, Albania. The interchange of *r* and *l* is a prevailing feature in Albanian, as in French, Chinese, Polynesian, and so many other tongues. The peasantry about Frascati and elsewhere in the Campagna call the English *Ingresi* for *Inglese*.

² Thus Strabo (vii.): "Leaving Epidamnus and Apollonia (Durazzo and Polini) to follow the Via Egnatia, we have on our right the peoples of Epirus, bordering on the Sicilian Sea as far as the Gulf of Ambracia, and on our left the Illyrian highlands and the peoples of that region as far as Macedonia and the Pæonians."

³ "Saggio di Grammatologia comparata sulla Lingua Albanese," Leghorn, 1865, p. 19.

⁴ In his classical work "Albanesische Studien," Jena, 1854.

⁵ "Ueber das Albanesische," Berlin, 1855.

⁶ Amongst others the anonymous author of the introductory remarks to Stanford's Ethnological Map, who (p. 8) speaks of the Albanians as "Greeks in their original and elementary condition," a fact "now clearly established . . . by the study of the Albanian dialect, which modern comparative philology has shown to be but another form of the Hellenic language."

⁷ "Una certa aura, per così dire, d'ellenismo, che ti fa talora credere d'udire parole greche invece di albanesi." (*Op. cit.*, p. 19.)

the extreme north, where the elements here absorbed belonged to some of the best Slav blood—Serbs and Montenegrins. But the plain and often even repulsive features met with in some of the central districts would seem to point at fusion with the Ugrian or Volga Finn Bulgarians, whose headquarters were at Okhrida, and who at that time (8th and 9th centuries) had not yet been Slavonised. Nevertheless, the Albanians are on the whole a fine and even a handsome race, with long head, oval face, long thin nose, rather high cheek bones, small eyes, generally grey or blue, hair often fair or light brown, long neck, broad chest, slim and upright figures. But descriptions of course vary with the experiences of the observer. Thus while Pouqueville speaks rather of black eyes, others describe the Tshks as essentially a blue-eyed and light-haired race. In general the purest type is found in the district between the Shkumbi and Voyussa, where Kamardas says that the language also is spoken in the greatest purity. North and south of this district both people and language are more or less intermingled with Slav and Hellenic elements respectively.

A. H. KEANE

REPORT OF THE BRITISH MUSEUM

THE Parliamentary Report of the Trustees of the British Museum, which has been lately issued, tells us that during the past year much progress has been made in arrangements for removal of the natural history collections, and in preparations for their reception in the new buildings designed for them at South Kensington. New cases and fittings have been provided and erected for the departments of botany and mineralogy, and in part for that of geology; and the transference of these three collections to the new museum will probably be effected in the course of the present year. The galleries vacated by these collections will be at once made use of for the exhibition of objects of archæological interest which have been accumulating for many years, and from want of space have been stored away in imperfectly-lighted rooms in the basement of the British Museum.

The whole of the zoological and geological portions of the India Museum at South Kensington, together with the friezes from the Amravati Tope and other remains of ancient sculpture, have been made over by the Secretary of State and Council of India to the Trustees of the British Museum. The sculpture will be exhibited in the Museum; the zoological and other collections have been removed to the New Natural History Museum at South Kensington.

Turning to Prof. Owen's special report on the departments of natural history, we are told that part of the work during the past year has been that of the preparation of the collections for the pending transfer to South Kensington.

In the department of zoology Dr. Günther informs us that not less than 45,881 specimens have been added to the several parts of the collection; of this, however, more than half is attributable to the collection of exotic butterflies, bequeathed to the nation by the late William Chapman Hewitson. This is one of the most extensive and valuable collections of this group of animals that has ever been formed; it consists of 24,624 specimens referable to 5,795 species, many of which have been described by the testator in his "Exotic Butterflies," "Diurnal Lepidoptera," and other works. The collection is in a perfect state of arrangement and preservation, and by Mr. Hewitson's direction a catalogue of its contents has been prepared and printed at the expense of his estate. The testator attached to this bequest the condition that the collection should be called the "Hewitson Collection," and should be kept in good order, preservation, and condition, and in the same cabinets, and in the same

order and arrangement, and under the same nomenclature as they should be at the time of his decease, until the expiration of twenty-one years from that time.

Another important addition to the national collection of insects made during the last parliamentary year was the Wollaston collection of St. Helena Lepidoptera, consisting of 364 specimens, and including types of thirty-eight species, collected and described by Mrs. Vernon Wollaston. This must be regarded as one of the most important acquisitions of last year, as the accurate and perfect knowledge of the fauna and flora of so isolated a locality as St. Helena at a given period will enable future investigators to determine exactly the changes which are taking place in oceanic islands, not only with regard to the composition of their fauna and flora, but also with regard to the specific characters of the animals and plants imported into them.

Four additions have been made to the well-known series of zoological catalogues in 1879, namely, the fourth volume of Mr. Sharpe's "Catalogue of Birds"; an octavo volume by Mr. C. O. Waterhouse, containing descriptions of typical specimens of coleoptera, illustrated by coloured plates; a volume containing descriptions of a number of new species of hymenoptera by the late Mr. Frederick Smith, which the lamented author left nearly ready for publication at the time of his death; and the third volume of Mr. Butler's "Illustrations of Typical Specimens of Lepidoptera heterocera."

Mr. Waterhouse's report on the Geological Department and Mr. Story Maskelyne's on that of Mineralogy succeed that of Dr. Günther, but we observe nothing of very special interest contained in them. Mr. Carruthers' report on Botany records an important addition to that department in the shape of the extensive herbarium of the late John Miers, F.R.S., &c., the distinguished botanist, which he bequeathed to the Trustees. It contains the types of the species described in his numerous systematic works and memoirs, as far as they were in his own possession, together with an extensive series of South American plants from various collectors, and many valuable collections from other regions of the world. Besides the plants Mr. John W. Miers has presented to the department the large series of original drawings made by his father from the living plants in South America and from dissections of plants in later years.

MARCEL DEPREZ'S GALVANOMETER FOR STRONG CURRENTS

PRACTICAL electricians have laboured up to the present time under a considerable difficulty in attempting to measure the strength of very powerful electric currents, such as are, for example, employed in the production of the electric light. There has been no simple instrument suited to the rapid direct measurement of the strength of such currents, much less one that would measure any fluctuations of short duration. Ordinary galvanometers have not been equal to the task, being adapted for a different class of work, usually of too high a resistance to be safely introduced into the circuit, and in general too leisurely in their movements to afford indications of any rapid fluctuations.

Although the current furnished by a good dynamo-electric machine, such as those of Gramme, Siemens and Brush, may for most practical purposes be considered both continuous and uniform, the construction of these instruments could hardly leave any doubt on *a priori* grounds that the current really consists of a number of successive impulses, which, although they may, as it were, run into one another and yield a continuous current, yet cause the strength of the current to be continually increasing and diminishing in rapid alternations; and indeed the telephone shows clearly that this is the case, for a low humming sound is heard in that instrument when its